Jatrorrhizine hydroxide

Cat. No.: HY-N0749A

CAS No.: 483-43-2

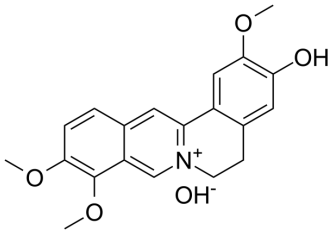
Molecular Formula: $C_{20}H_{21}NO_5$

Molecular Weight: 355.38

Target: Cholinesterase (ChE); Bacterial; 5-HT Receptor

Pathway: Neuronal Signaling; Anti-infection; GPCR/G Protein

Storage: 4°C, protect from light
* In solvent : -80°C, 6 months; -20°C, 1 month (protect from light)



SOLVENT & SOLUBILITY

In Vitro

DMSO : 3.33 mg/mL (9.37 mM; Need ultrasonic)
H_2O : 2.5 mg/mL (7.03 mM; Need ultrasonic)

Preparing Stock Solutions

Concentration \ Solvent \ Mass	1 mg	5 mg	10 mg
1 mM	2.8139 mL	14.0694 mL	28.1389 mL
5 mM	0.5628 mL	2.8139 mL	5.6278 mL
10 mM	---	---	---

Please refer to the solubility information to select the appropriate solvent.

In Vivo

1. Add each solvent one by one: Saline
Solubility: 0.71 mg/mL (2.00 mM); Clear solution; Need ultrasonic and warming and heat to 60°C

BIOLOGICAL ACTIVITY

Description

Jatrorrhizine hydroxide is an alkaloid isolated from Coptis chinensis with neuroprotective, antimicrobial, antiplasmodial and antioxidant activities[1]. Jatrorrhizine hydroxide is a potent and orally active inhibitor of AChE (IC_{50}=872 nM) over >115-fold selectivity for BuChE[2]. Jatrorrhizine hydroxide reduces uptake of serotonin (5-HT) and norepinephrine (NE) via inhibition of uptake-2 transporters[3].

IC_{50} & Target

IC50: 872 nM (AChE)[1]

In Vitro

Jatrorrhizine has antiplasmodial and antiamoebic activity, it against Plasmodium falciparum and E. histolytica with IC_{50} values of 3.15 and 82.7 μM, respectively[1].
The hOCT2 (organic cation transporter 2), hOCT3, and PMAT (plasma membrane monoamine transporter) are capable of transporting monoamine neurotransmitters in the brain[3].
Jatrorrhizine has the inhibitory potency of jatrorrhizine on 5-HT and NE uptake in hOCT2-, hOCT3-, and PMAT-transfected cells. Jatrorrhizine strongly inhibits PMAT-mediated MPP^+ uptake with an IC_{50} value of 1.05 μM and reduces 5-HT and NE

uptake mediated by hOCT2, hOCT3, and hPMAT with IC_{50} values of 0.1-1 μM (for OCT2 and OCT3) and 1-10 μM (for PMAT)[3]. Clearance of neurotransmitters released into the synaptic cleft is defined by two distinct processes. Uptake-1, the common target of current applied antidepressants, is comprised of the serotonin transporter (SERT), the "SERT", had a high affinity but low capacity to take up [3H]5-HT. Uptake-2 transporters are an important supplementary regulation system in monoamine clearancethought to be the "NET", has low affinity but high capacity to take up [^{3}H]5-HT into brain slices. Jatrorrhizine significantly inhibited 5-HT and NE uptake in synaptosomes at 25 μM and 50 μM[3].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

In Vivo

Jatrorrhizine (intraperitoneal injection; 5, 10, 20 mg/kg) can significantly reduce the duration of immobility when compared with vehicle control group in tail suspension test (TST)[2].

MCE has not independently confirmed the accuracy of these methods. They are for reference only.

Animal Model:	Male ICR albino mice[2]
Dosage:	5, 10, 20 mg/kg
Administration:	Intraperitoneal injection; 5, 10, 20 mg/kg
Result:	Reduced immobility period in tail suspension test.

REFERENCES

[1]. Sun S, et al. Jatrorrhizine reduces 5-HT and NE uptake via inhibition of uptake-2 transporters and produces antidepressant-like action in mice. Xenobiotica. 2019 Oct;49(10):1237-1243.

[2]. Xiaofei Jiang, et al. Synthesis and Biological Evaluation of Novel Jatrorrhizine Derivatives with Amino Groups Linked at the 3-Position as Inhibitors of Acetylcholinesterase. Research Article Volume 2017

[3]. C W Wright, et al. In vitro antiplasmodial, antiamoebic, and cytotoxic activities of some monomeric isoquinoline alkaloids. J Nat Prod. 2000 Dec;63(12):1638-40.

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